JVC

SERVICE MANUAL

MODEL
MR-200L
MINI RADIO
CASSETTE RECORDER

No. 0003
Oct. 1978

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Specification

DIMENSIONS : 214mm(W) x 102mm(H) x 34mm(D)
8-7/16"(W) x 4"(H) x 1-5/16"(D)

WEIGHT : Approx. 800g (1.8 lbs.) with batteries

Frequency ranges	:	FM 88 – 108MHz MW 530 – 1,600kHz LW 150 – 350kHz
Antennas	:	Telescopic antenna for FM Ferrite core antenna for MW & LW
Track system	:	2-track, monaural
Recording system	:	AC bias
Erasing system	:	DC erase
Cassette	:	Philips type cassette
Fast forward time	:	Within 120 sec. (C-60 cassette)
Rewind time	:	Within 120 sec. (C-60 cassette)
Frequency response	:	300 – 8,000Hz
Wow & flutter	:	0.2% WRMS
Semiconductors	:	2 IC, 12 transistors
Speaker	:	5.7cm
Power output	:	600mW max.
Input jacks	:	MIC; Sensitivity 0.3mV Accepts a low impedance microphone. DC IN (6V)
Output jacks	:	EAR/REMOTE
Power supply	:	DC 6V (4 "AA" batteries) AC (using the AC adaptor) Car battery (using the car adaptor)
Battery life	:	Continuous recording time with the built-in microphone; approx. 2.5 hours with the super type battery UM-3DJ (size AA)

Design and specifications subject to change without notice.

Names of Parts

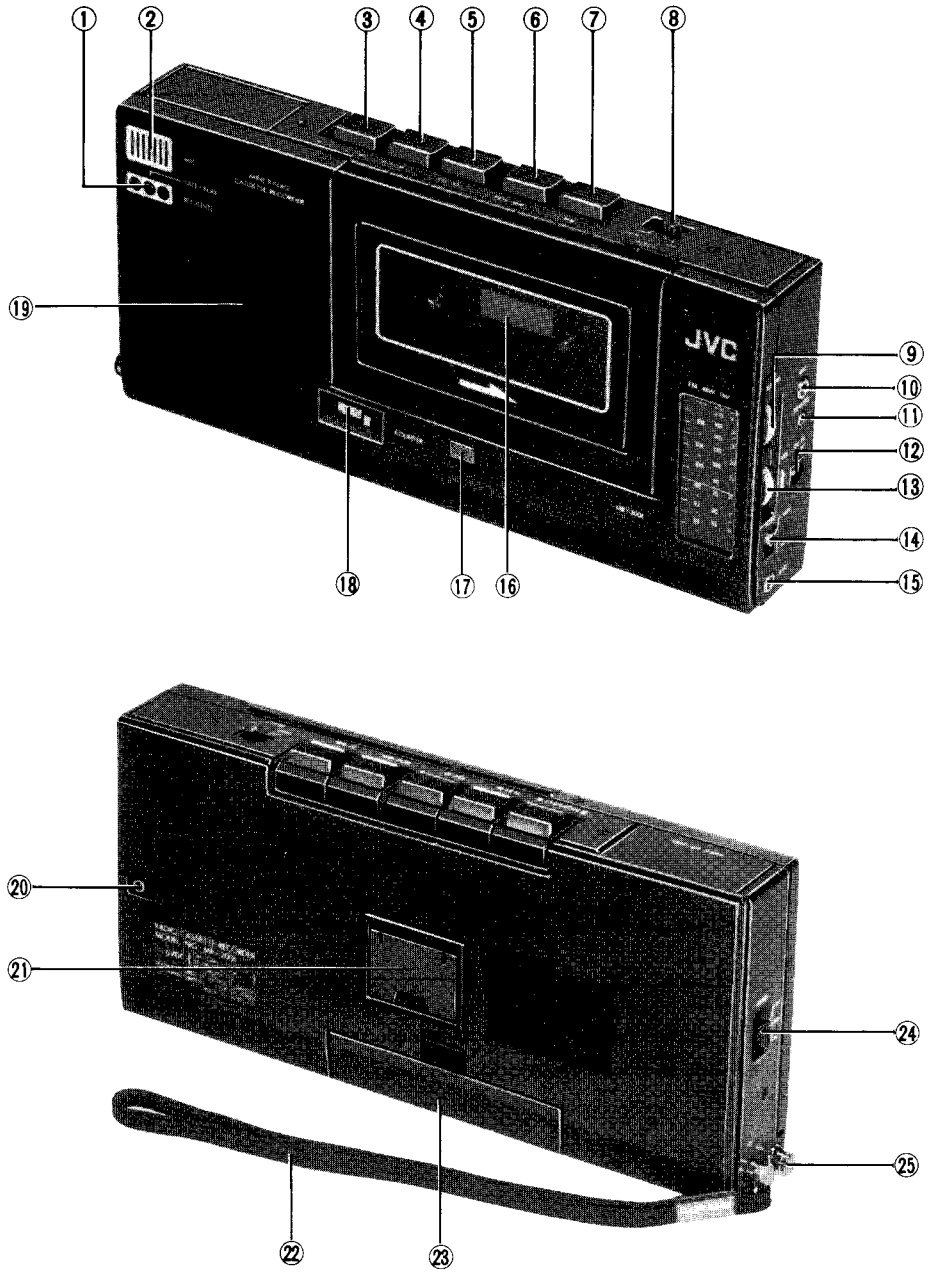


Fig. 1

1. LED indicators
   During recording, three LED's flash according to the signal level. During playback, the middle indicator functions as a battery checker. If it remains lit, the battery power is sufficient.
2. Built-in condenser microphone
3. STOP/EJECT button
4. PLAY button
5. Record button (REC)
6. Rewind button (REW/REVIEW)
7. Fast forward button (FF)
8. SELECT switch (RADIO-TAPE/RADIO OFF)
9. TUNING knob
10. External microphone jack (MIC)
11. Remote control jack (REMOTE)
12. External DC input jack (DC IN 6V)
    Connect an AC power adaptor or a car battery adaptor to operate via an external DC power supply.
13. Volume control knob (VOL)
14. TONE switch (HIGH-LOW)
15. Earphone jack (EAR)
16. Cassette compartment
17. Azimuth adjustment hole
    For use only by service personnell.
18. Tape counter
19. Speaker
20. Beat cut switch
21. Stand
22. Security strap
23. Battery compartment
24. Band selector switch (BAND-LW/MW/FM)
25. Telescopic antenna

Disassembly and Replacement

Enclosure

Parts Name	Procedure	Ref. No.	Description
Bottom panel	1. Remove battery lid and take out batteries. 2. Remove 5 screws and 2 screws.	Fig. 3 ① ②	SPSK2003M SPSK2008M
Top panel	Remove 5 screws.	Fig. 2,3 ③	SPSK2003M
Side cover	Remove 2 screws.	Fig. 2 ④ ⑤	SPSK2003M SPSK2004M
Inner-lay and cassette lid	1. Remove 4 screws and then remove the cassette lid ass'y. 2. Then put out the hinge shaft.	Fig. 4 ⑥	SPSK2002M
Inner cover	1. Remove indicator circuit board. 2. Remove 2 screws.	Fig. 4 ⑦ Fig. 4 ⑧	Refer to Electric parts. SPSP2010Z F00410-25N

Electric parts

Parts Name	Procedure	Ref. No.	Description
Amp. circuit board	Remove tuning string. 1. Remove a screw with lug and shield plate. 2. Remove 2 screws.	Fig. 5 Fig. 6 ⑨ Fig. 6 ⑩ Fig. 3 ⑨	 SPSK2003M SPSK2003M SPSK2003M
Indicator circuit board	Remove 2 screws.	Fig. 4 ⑪	F00410-25N

Cassette mechanism

Parts Name	Procedure	Ref. No.	Description
Mecha. Ass'y	Remove 3 screws.	Fig. 4,7 ⑫	SPSK2004M
Motor wires	Remove two wires soldered to amp. circuit board.	Fig. 26 (wiring)	Black & Orange

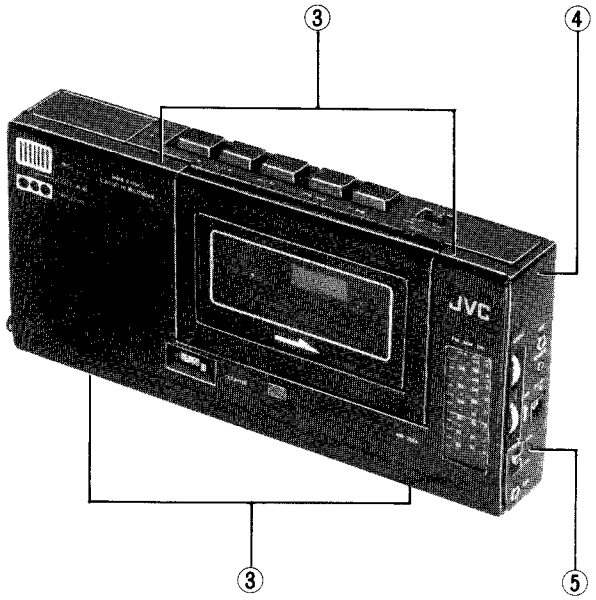


Fig. 2

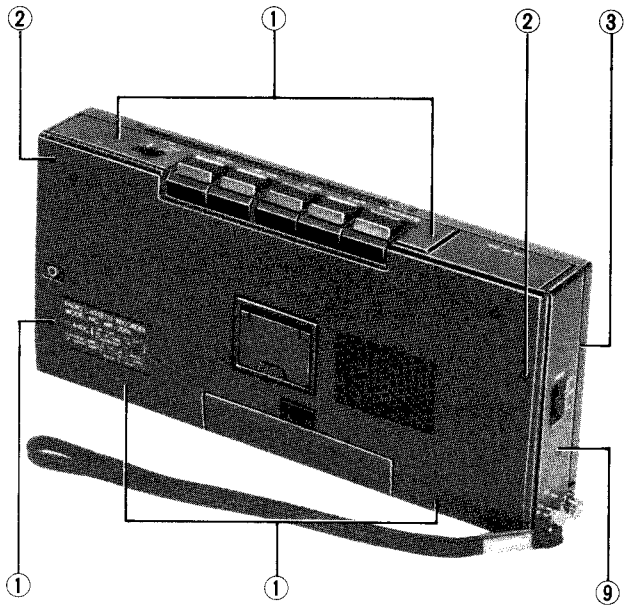


Fig. 3

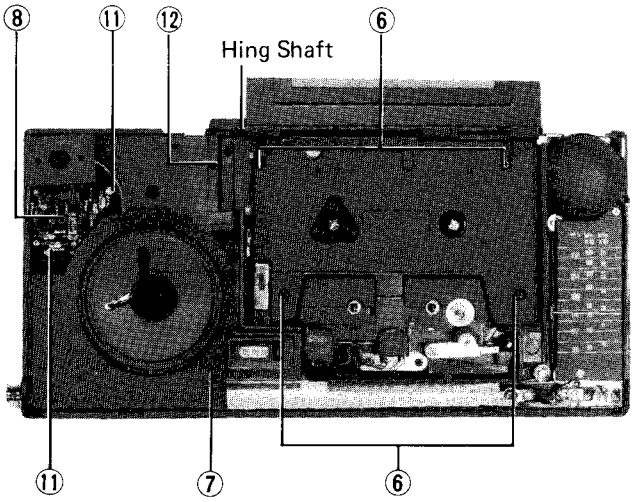


Fig. 4

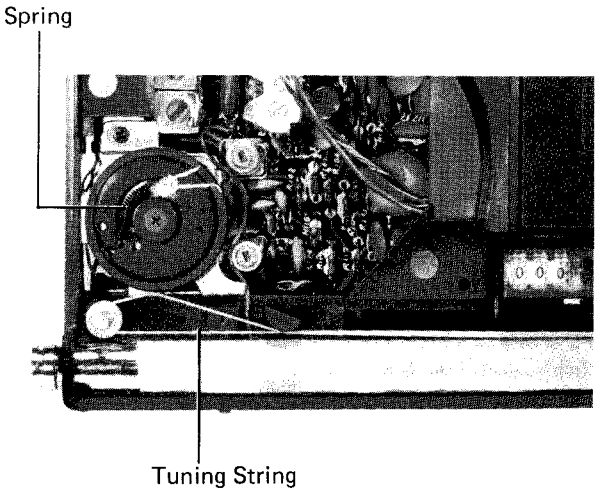


Fig. 5

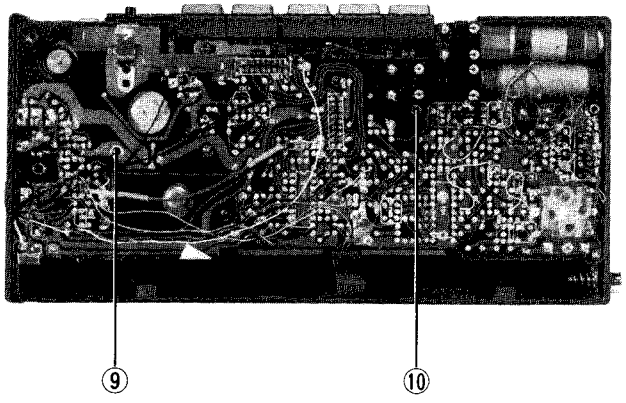


Fig. 6

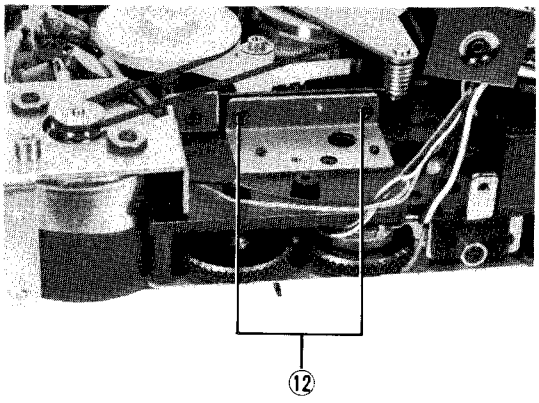


Fig. 7

Mechanical parts

Parts Name	Procedure	Ref. No.	Description
Motor ass'y	1. Remove an E ring and then remove the take-up arm ass'y 2. Remove 2 screws. (for motor) Then remove 2 screws. (for E. governor)	Fig. 8 ⑮ Fig. 8 ⑯ Fig. 9 ⑰ ⑱	REE2500 SPSK2045M SPSK2004M SPSK2016M
Flywheel ass'y and rewind arm ass'y	1. Remove a wahser on the capstan, then remove 3 screws.	Fig. 8 ⑬ ⑭ Fig. 10 ⑲	SPSK2005N SPSK2003M F28594-01
Pinch roller arm ass'y	Remove an E ring and then remove the pinch roller arm ass'y, together with pinch roller arm spring.	Fig. 10 ⑳	REE1500
Take-up arm ass'y	Remove an E ring.	Fig. 8 ⑮	REE2500
Take-up disk	Remove a disk screw.	Fig. 10 ㉑	F28457-01
FF idler ass'y	1. Remove take-up arm ass'y. 2. Remove an E ring.	Fig. 9 ㉒	REE1500

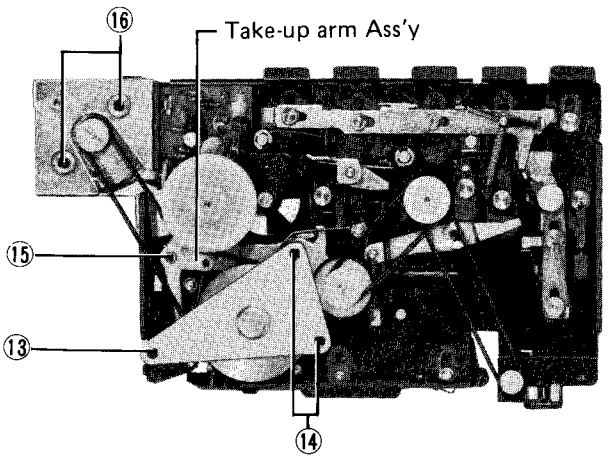


Fig. 8

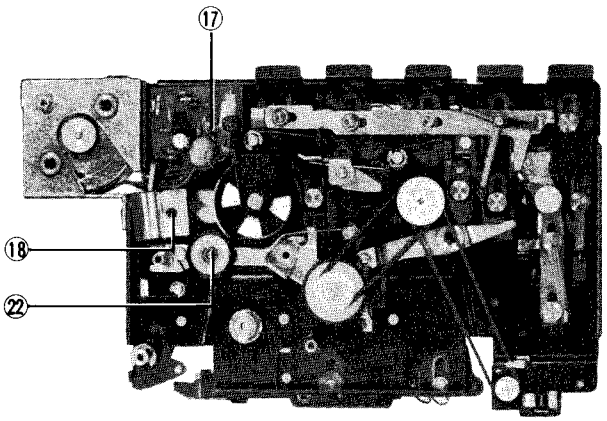


Fig. 9

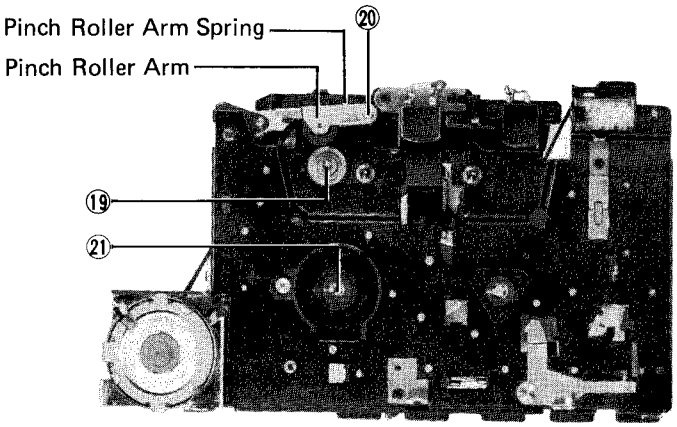


Fig. 10

Mechanical Adjustments

1. Head replacement and adjustment

Clean and demagnetize the head and guide each time the machine is serviced. If normal fidelity is not obtainable head replacement is indicated.

Head replacement

1) R/P head
   - Remove two wires soldered to head.
   - Remove two screws.
   - Then replace head.
   - Solder as shown in Fig. 11.
2) Erase head
   - Remove two wires soldered to head.
   - Remove two screws and replace head.
   - Solder as shown in Fig. 11.

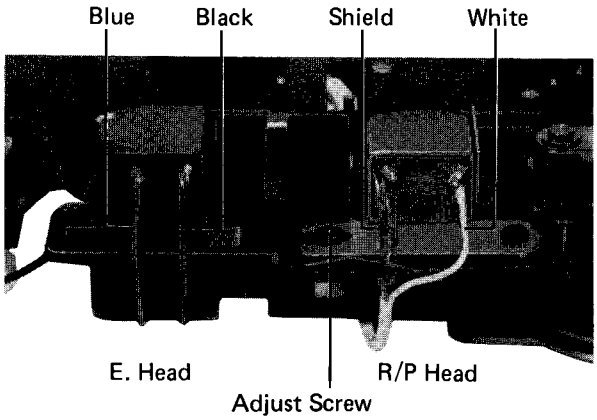


Fig. 11

Location of heads

The R/P and Erase heads should be positioned as shown in Fig. 12. Azimuth adjustment of the head should be done according to the following instructions.

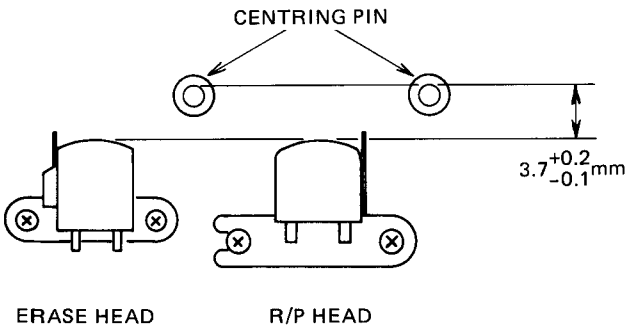


Fig. 12

Azimuth adjustment

1) Plug a cord into the earphone jack (EAR) a 8Ω resistor (corresponding to a loud speaker) in parallel with the cord.
2) Connect an oscilloscope or electronic volt meter across the terminals of the cord.
3) While playing back a test 6.3kHz tape (VTT-651) for azimuth adjustment, adjust screw (Fig. 11) so that the maximum output can be obtained.
4) If no test tape is available, play back a music cassette and adjust for maximum output and clarity in the high frequency range.
5) Be sure to lock the adjust screw with paint after adjustment.

2. Motor speed adjustment

1) Plug a cord into the earphone jack (EAR) and connect a 8Ω resistor in parallel with the cord.
2) Connect a frequency counter across the terminal of the cord.
3) While playing back a test 3kHz tape (VTT-656) for motor speed adjustment, adjust VR on the Electronic governor board (Fig. 13) so that the frequency counter indicates within 3000 to 3030Hz.

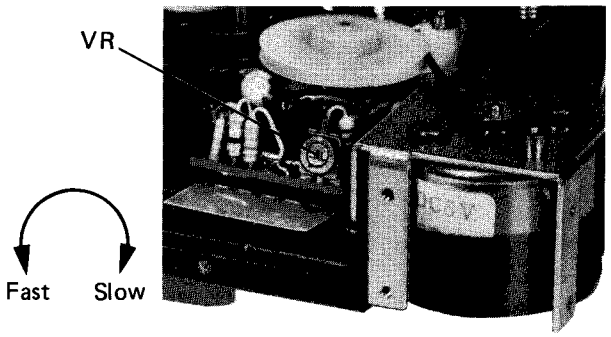


Fig. 13

3. Thrust of Flywheel

The clearance between the top of flywheel shaft and the flywheel holder should be within 0.05 to 0.2mm. If the clearance is beyond the limits, adjust the screw for normal value. Fig. 14

Note: After adjustment, fix the screw with lock adhesive.

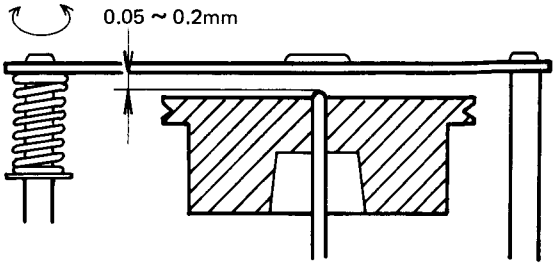


Fig. 14

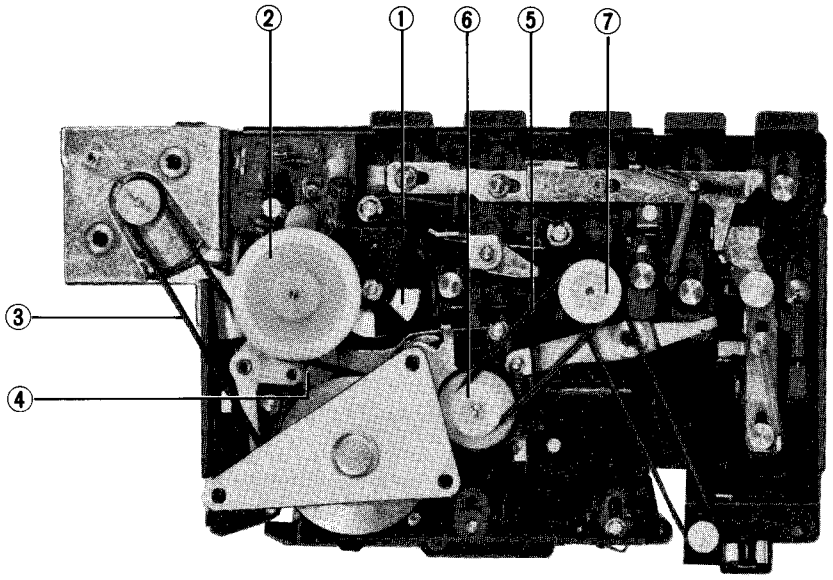


Fig. 15

Playback torque Fig. 15
Normal torque : 27 ~ 42 gr-cm
If this not obtainable,
1) Clean drive belt, take-up wheel, and clutch disk tire.
2) Replace clutch disk ass'y. (1)
3) Replace take-up wheel. (2)
4) Replace drive belt. (3)

Fast forwarding torque Fig. 15
Normal torque : 70gr-cm or more
If this is not obtainable,
1) Clean drive belt, idler and clutch disk tire.
2) Replace idler ass'y. (4)
3) Replace clutch disk ass'y. (1)
4) Replace drive belt. (3)

Rewinding torque Fig. 15
Normal torque : 40gr-cm or more
If this is not obtainable,
1) Clean belt, idler and pulley.
2) Replace rewind belt. (5)
3) Replace idler ass'y. (6)
4) Replace pulley. (7)

Tuner Alignment

Power Source : DC 6V
Tone Control : High
Output Measuring : Speaker terminal (Impedance =8Ω), output level 50mW (0.63V/8Ω)
Input (SSG) : Modulation 400Hz, Modulated to 30% (MW, LW)
Modulation 1000Hz, Modulated to 30% (FM)

RF Alignment

Volume Control : Maximum

Step	Frequency Band	Input Signal		Place to be aligned	Set the V. Capacitor to
		Frequency	Given to		
1	MW	515kHz	Loop Antenna	L104	Maximum
2		1650kHz		C128a	Minimum
3		Repeat the Steps 1 & 2.			
4		600kHz	Loop Antenna	L107	600kHz Signal
5		1400kHz		C145	1400kHz Signal
6		Repeat the Steps 4 & 5, and adjust for no further improvement.			
7	LW	145kHz	Loop Antenna	L105	Maximum
8		360kHz		C128b	Minimum
9		Repeat the Steps 7 & 8.			
10		160kHz	Loop Antenna	L108	160kHz Signal
11		350kHz		C144	350kHz Signal
12		Repeat the Steps 10 & 11, and adjust for no further improvement.			
13	FM	87.5MHz	Rod Antenna	L102	Maximum
14		109MHz		C103a	Minimum
15		Repeat the Steps 13 & 14.			
16		90MHz	Rod Antenna	L101	90MHz Signal
17		106MHz		C103b	106MHz Signal
18		Repeat the Steps 16 & 17, and adjust for no further improvement.			

IF & Discriminator Alignment

Volume Control: Minimum
Set the V. Capacitor to: Minimum

	Input Signal		Place to be aligned	Output	Refer to
	Frequency	Given to			
MW	460kHz	Ant. (hot)	T102a, T102b	IC101 Pin ②	Fig. 17, 20-1
FM	10.7MHz	Bace of X102	T101	IC101 Pin ⑧	Fig. 18, 20-2
			T103	IC101 Pin ⑤	Fig. 19, 20-2

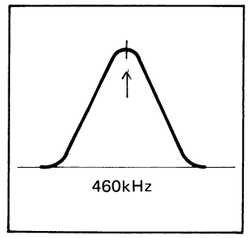


Fig. 17

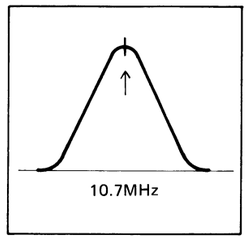


Fig. 18

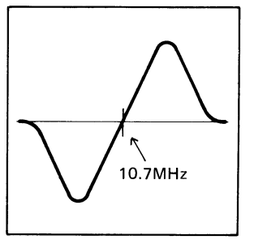


Fig. 19

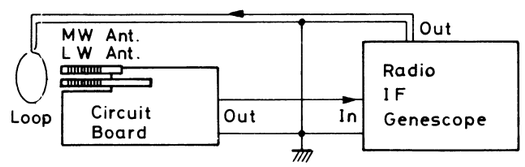


Fig. 20-1

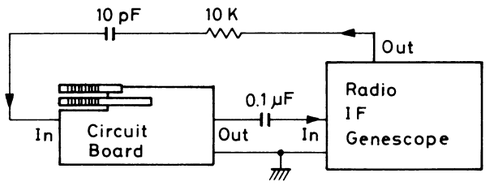


Fig. 20-2

Parts Arrangement for Alignment

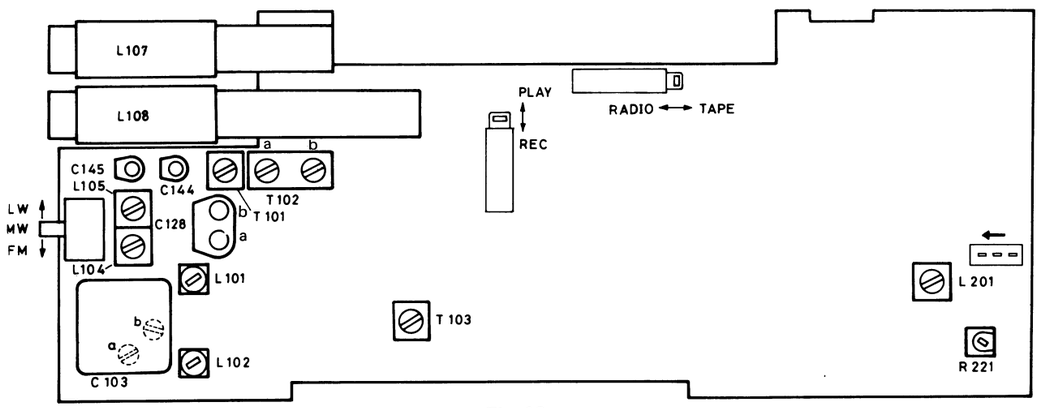


Fig. 16

Adjusting Recording Bias

Set the Beat Cut switch to inside of circuit board.
Remove shield wire soldered to head.
Connect a resistor of 10Ω to terminal of head and shield wire.
Set the recorder in the recording mode.

Bias Frequency
Connect the frequency counter to the terminal of head and shield wire.
Adjust the L201 so that the frequency counter indicated 47 ± 1kHz.

Bias Current
Connect the Electronic Volt Meter (V.T.V.M) to the terminal of head and shield wire.
Adjust the R221 so that the Electronic Volt Meter (V.T.V.M) indicated 550μA (5.5mV/10Ω).

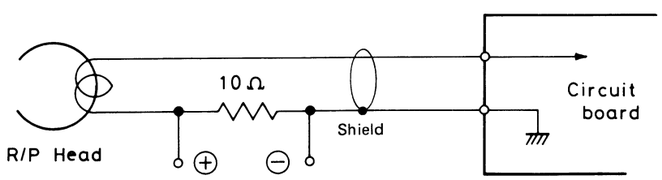


Fig. 21

How to Fit Tuning String

Turn the dial drum fully counterclockwise.
Fit the string in numerical order as shown below.

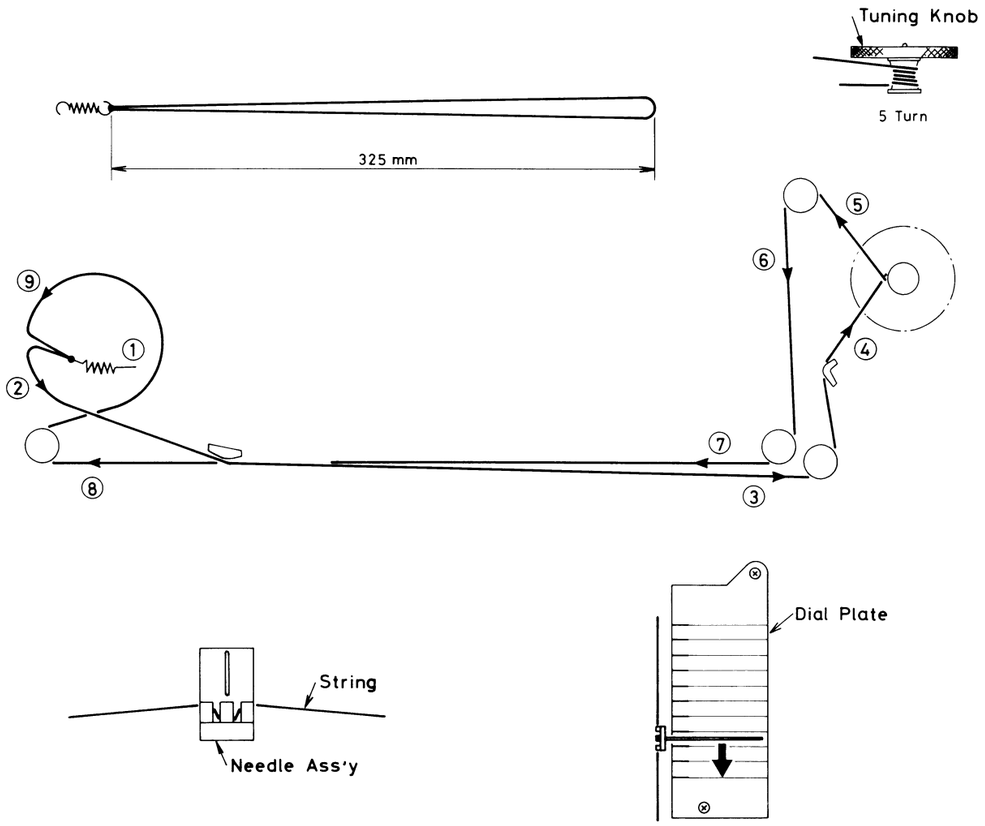


Fig. 22

Cleaning and Lubrication

1. Cleaning

Wipe contamination off the head, capstan, pinch roller and other parts which come in contact with the tape. Dust on the head results in poor sound and ineffective erasing. Use a cloth soaked in alcohol, benzine, trichloroethylene, etc.
Be careful of handling these chemicals as they damage the cabinet.

2. Lubrication

Feed one or two drops of DTE oil or equivalent machine oil to the rewind roller shaft and pinch roller shaft once or twice an year on a normal use basis. Too much oil results in unsmooth rotation.

3. Remarks

Be careful not to apply oil to the rubber or rotating parts of belt, and pinch roller. Wipe off oil with a cloth soaked in alcohol to remove oil etc.

Block Diagram

Play back & Radio Recep tion Mode

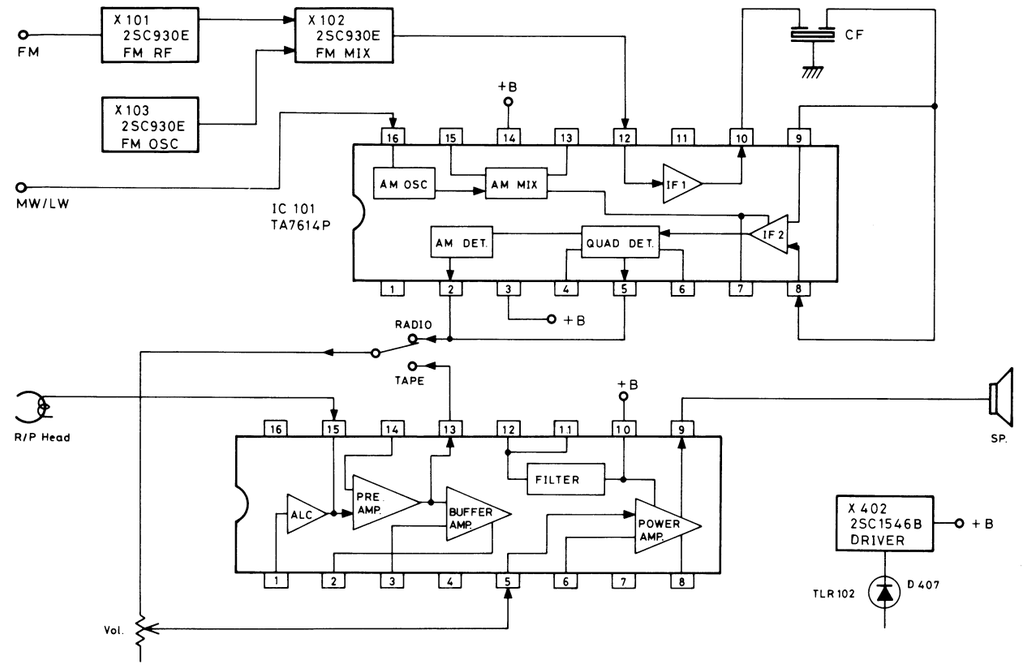


Fig. 23

Recording Mode

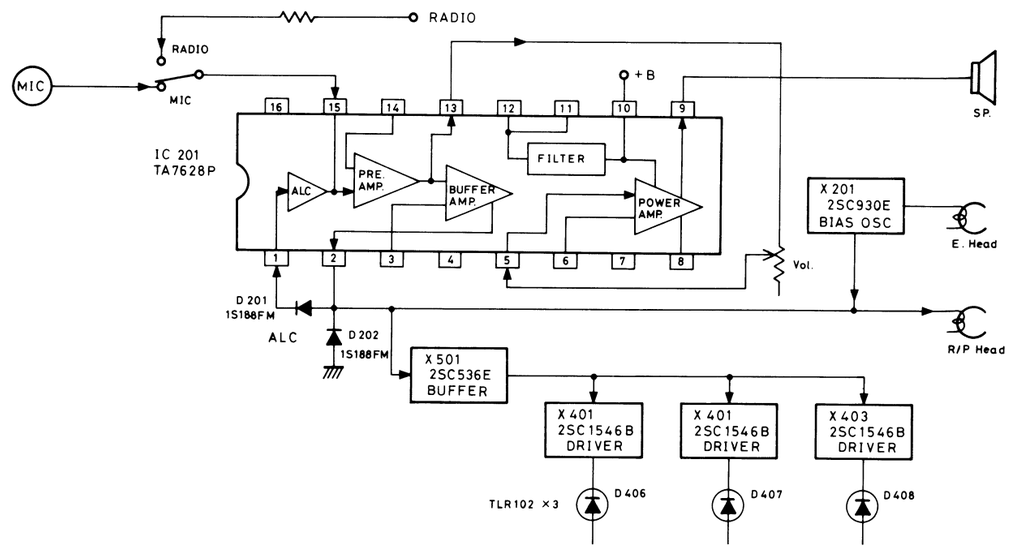
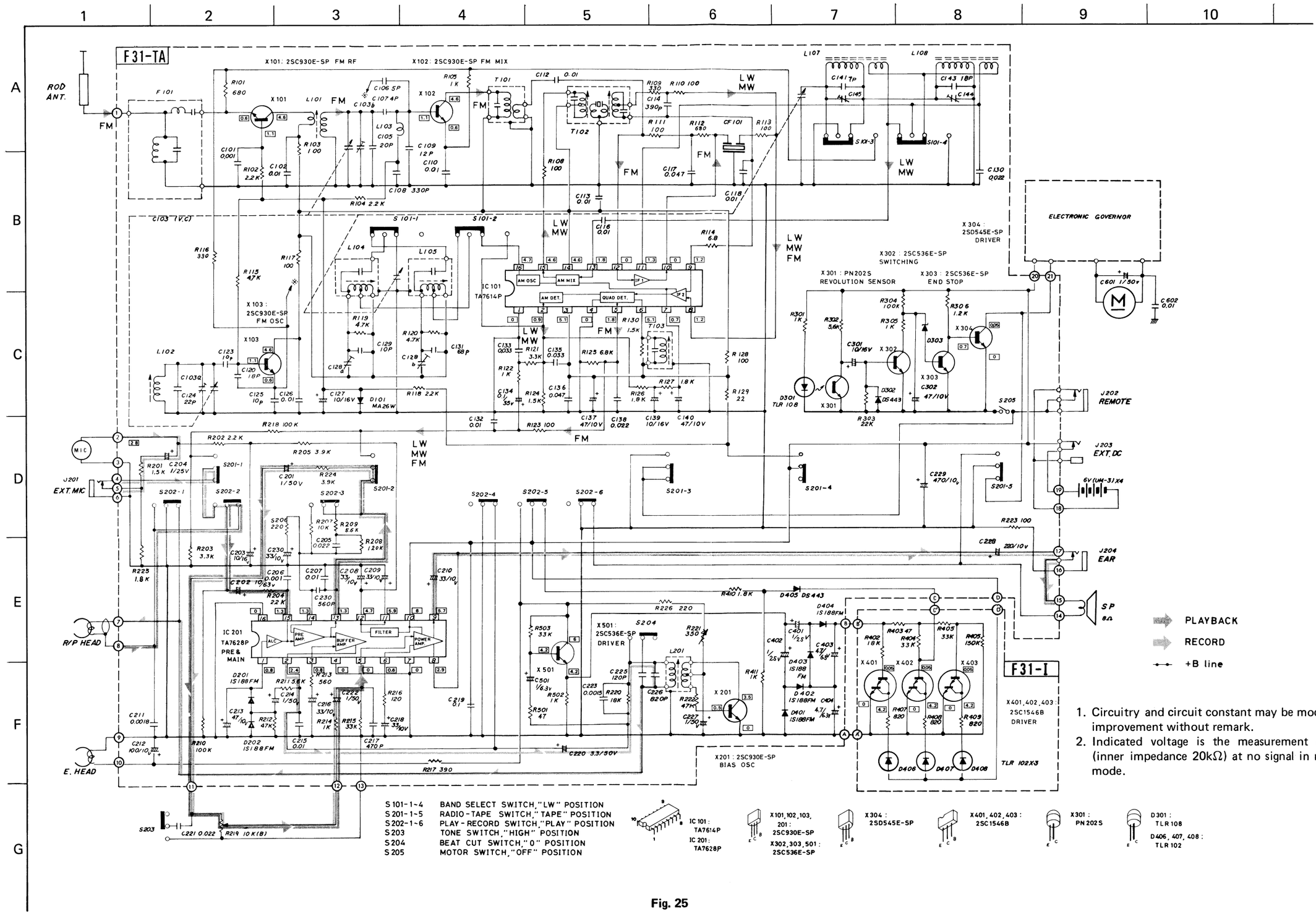


Fig. 24

Schematic Diagram



1. Circuitry and circuit constant may be modified for improvement without remark.
2. Indicated voltage is the measurement of tester (inner impedance 20kΩ) at no signal in recording mode.

Fig. 25

Wiring

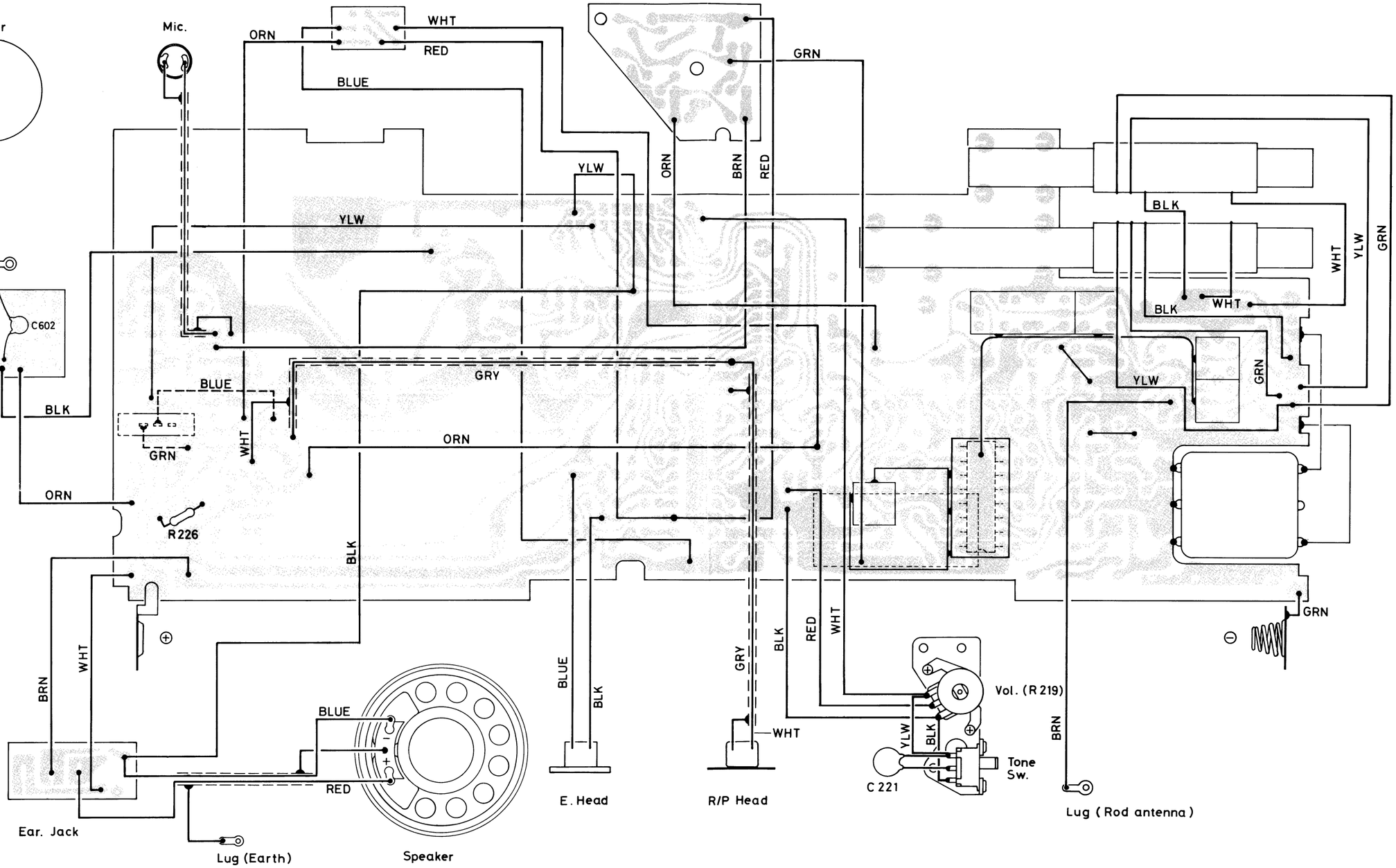
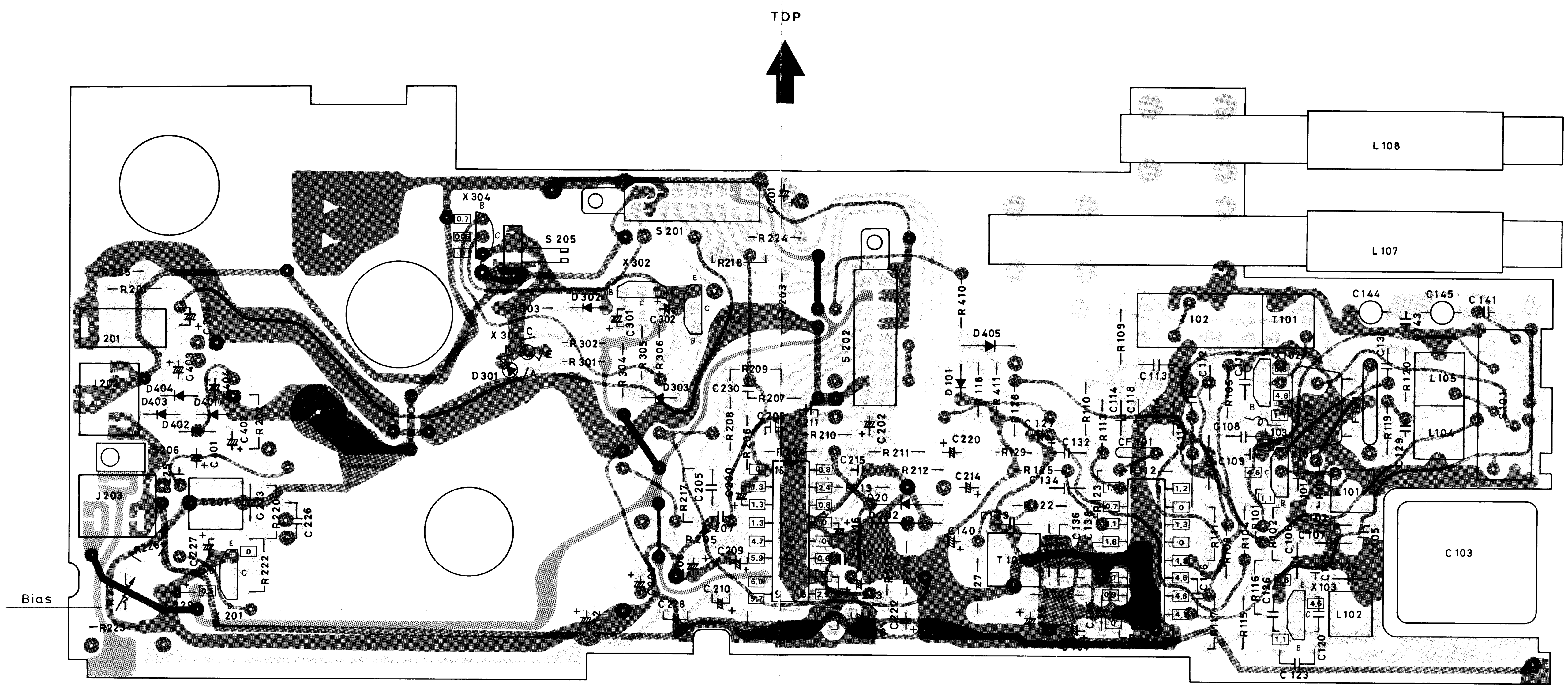
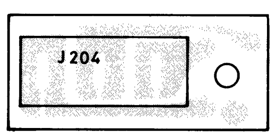
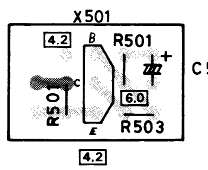


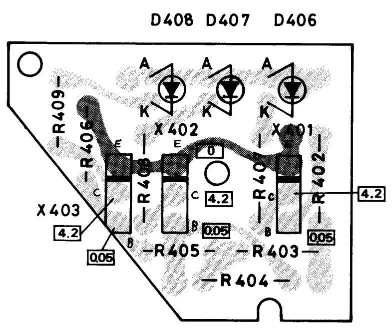
Fig. 26

Circuit Board Parts









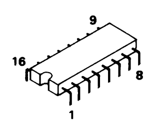
Positive line

Common line

Circuit pattern of parts side.

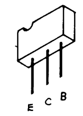
Positive line of parts side

Indicated voltage is the measurement of tester (inner impedance 20kΩ) at no signal in recording mode.

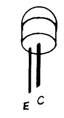


IC 101 : TA7614 P

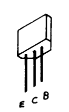
IC 201 : TA7628P



X401, 402, 403 : 2SC1546B

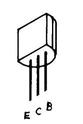


X301 : PN202S

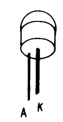


X101, 102, 103, 201 : 2SC930E-SP

X202, 302, 303 : 2SC536E-SP



X304 : 2SD545E-SP



D301 : TLR 108

D406, 407, 408 TLR 102

Fig. 27

Parts list of circuit board

Transistor

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Remarks	Pc	fT	Q'ty
X101,102,103,201	*2SC930E-SP	Photo Transistor	0.12W	300MHz	4
X301	PN202S		—	—	1
X302,303,501	*2SC536E-SP		0.2W	100MHz	3
X304	*2SD545E-NP		0.6W	180MHz	1
X401,402,403	2SC1546B		0.3W	250MHz	3

IC & Diodes

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
IC101	*TA7614P	IC		1
IC201	*TA7628P	〃		1
D101	MA26W	Diode		1
D201,202,401,402, 403,404	1S188FM	〃		6
D301	TLR108	LED		1
D302,405	DS443	Diode		2
D303	RD2.4EB	Zener Diode		1
D406,407,408	TLR102	LED		3

I.F.T. & Coil

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
T101	*F00326-02	I.F.T.	MW CF	1
T102	* 〃 -04	〃	FM 1ST	1
T103	* 〃 -03	〃	FM DET	1
L101	*F00327-01	RF Coil	FM RF	1
L102	* 〃 -02	〃	FM O.S.C.	1
L103	*F00330-03	Coil	IF Trap	1
L104	*F00328-01	O.S.C. Coil	MW	1
L105	* 〃 -02	〃	LW	1
L107	*F00329-01	Bar Ant. Coil	MW	1
L108	* 〃 -02	〃	LW	1
L201	*F28317-02	O.S.C. Coil	Bias	1

Capacitors

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Remarks		Q'ty
C101,110	QCF11HP-102	Ceramic	1000pF	50V	2
C102,111,112,113, 116,118,126	QCF11HP-103	〃	0.01μF	〃	7
C103	*QAP1224-514	Variable			1
C105	QCS11HJ-200	Ceramic	20pF	50V	1
C106	〃 -4R0	〃	4pF	〃	1
C107	〃 -5R0	〃	5pF	〃	1
C108	*QCY41HK-331	〃	330pF	〃	1
C109	QCS11HJ-120	〃	12pF	〃	1
C114	*QCY41HK-391	〃	390pF	〃	1
C117,136	QCF11HP-473	〃	0.047μF	〃	2
C120	QCT05CH-180	〃	18pF	〃	1
C123,125	〃 -100	〃	10pF	〃	2

Ref. No.	Parts No.	Parts Name	Remarks		Q'ty
C124	*QCT05CH-220	Ceramic	22pF	50V	1
C127,139	*QET41CR-106M	Electrolytic	10μF	16V	2
C128	*QAT2002-002	Trimmer		〃	1
C129	QCS11HJ-100	Ceramic	10pF	50V	1
C130	QCF11HP-223	〃	0.022μF	〃	1
C131	QCS11HJ-680	〃	68pF	〃	1
C132	*QCZ0109-103	〃	0.01μF	〃	1
C133,135	〃 -333	〃	0.033μF	〃	1
C134	QEE41VM-104	Tantal	0.1μF	35V	1
C137	*QET41AR-107M	Electrolytic	100μF	10V	1
C138	QFM41HK-223	Mylar	0.022μF	50V	1
C140	*QET41AR-476M	Electrolytic	47μF	10V	1
C141	QCS11HJ-7R0	Ceramic	7pF	50V	1
C143	〃 -180	〃	18pF	〃	1
C144,145	*QAT3001-015	Trimmer			2
C201,214,222,227	*QET41HR-105M	Electrolytic	1μF	50V	4
C202	*QEE40JM-106B	Tantal	10μF	6.3V	1
C203	*QET41CR-106M	Electrolytic	10μF	16V	1
C204	*QEE41EM-105M	Tantal	1μF	25V	1
C205,221	*QCZ0109-223	Ceramic	0.022μF	50V	2
C206	*QCZ0109-102	〃	0.001μF	〃	1
C207,215	* 〃 -103	〃	0.01μF	〃	2
C208,209,210,216, 218,230	*QET41AR-336M	Electrolytic	33μF	10V	6
C212	* 〃 -107M	〃	100μF	〃	1
C213	* 〃 -476M	〃	47μF	〃	1
C219	*QCZ0109-104M	Ceramic	0.1μF	50V	1
C220	*QET41HR-335M	Electrolytic	3.3μF	〃	1
C225	QCS11HJ-121	〃	120pF	〃	1
C226	*QCY41HK-821	〃	820pF	50V	1
C228	*QET41AR-227M	〃	220μF	10V	1
C229	* 〃 -477M	〃	470μF	〃	1
C230	*QCY41HK-561	Ceramic	560pF	50V	1
C301	*QET41CR-106M	Electrolytic	10μF	16V	1
C302	*QET41AR-476M	〃	47μF	10V	1
C401,402	*QEE41EM-105B	〃	1μF	25V	2
C403,404	*QEE41EM-475B	〃	4.7μF	6.3V	2
C501	QEE41EM-105	Tantal	1μF	25V	1

Resistors

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Remarks		Q'ty
R101,105,116	QRD181J-681B	Carbon	680Ω	1/8W	3
R102,104,118	〃 -222B	〃	2.2kΩ	〃	3
R103,108,117, 123,128,129	〃 -101B	〃	100Ω	〃	6
R109,111,112	〃 -331B	〃	330Ω	〃	3
R110	〃 -151B	〃	150Ω	〃	1
R113	〃 -181B	〃	180Ω	〃	1
R114	〃 -6R8B	〃	6.8Ω	〃	1
R115,119,120	〃 -472B	〃	4.7kΩ	〃	3
R121	〃 -332B	〃	3.3kΩ	〃	1
R122	〃 -102B	〃	1kΩ	〃	1
R124	〃 -152B	〃	1.5kΩ	〃	1
R125	〃 -682B	〃	6.8kΩ	〃	1
R126,127	〃 -182B	〃	1.8kΩ	〃	2
R130	〃 -153B	〃	15kΩ	〃	1
R201	〃 -152B	〃	1.5kΩ	〃	1
R202,204	〃 -222B	〃	2.2kΩ	〃	2
R203	〃 -332B	〃	3.3kΩ	〃	1
R205	〃 -392B	〃	3.9kΩ	〃	1
R206,226	〃 -221B	〃	220Ω	〃	2
R207	〃 -103B	〃	10kΩ	〃	1
R208	〃 -124B	〃	120kΩ	〃	1
R209,211	〃 -562B	〃	5.6kΩ	〃	2
R210,218	〃 -104B	〃	100kΩ	〃	2
R212,222	〃 -473B	〃	47kΩ	〃	2
R213	〃 -561B	〃	560Ω	〃	1
R214	〃 -102B	〃	1kΩ	〃	2
R215	〃 -333B	〃	33kΩ	〃	1
R216	〃 -121B	〃	120Ω	〃	1
R217	〃 -391B	〃	390Ω	〃	1
R219	*QVZ3007-002	Variable	10kΩ (B)		1
R220	QRD181J-183B	Carbon	18kΩ	1/8W	1
R221	*QVZ3235-351	Variable	350Ω		1
R223	QRD181J-101B	Carbon	100Ω	1/8W	1
R224	〃 -392B	〃	3.9kΩ	〃	1
R225	〃 -182B	〃	1.8kΩ	〃	1
R301,305	〃 -102B	〃	1kΩ	〃	2
R302	〃 -562B	〃	5.6kΩ	〃	1
R303	〃 -223B	〃	22kΩ	〃	1
R304	〃 -104B	〃	100kΩ	〃	1
R306	〃 -122B	〃	1.2kΩ	〃	1
R402	〃 -183B	〃	18kΩ	〃	1
R403	〃 -473	〃	47kΩ	〃	1
R404,405	〃 -333B	〃	33kΩ	〃	2
R406	〃 -154	〃	150kΩ	〃	1
R407,408,409	〃 -821	〃	820Ω	〃	3
R410	〃 -182	〃	1.8kΩ	〃	1
R411	〃 -102	〃	1kΩ	〃	1
R501	〃 -470B	〃	47Ω	〃	1
R502	〃 -102B	〃	1kΩ	〃	1
R503	〃 -333B	〃	33kΩ	〃	1

Others

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
F101	*F31316-01	Print Filter		1
CF101	*SFE10.7MS3	Ceramic Filter		1
S101	*QSS4301-032	Slide Switch	Band	1
S201,202	QSS0040-002	〃		2
S203,204	*QSS0041-001	〃		2
S205	F28307-01	Leaf Switch		1
J201,204	QMS3501-015	Jack	Mic, Ear	2
J202	QMS2501-101	〃	Remote	1
J203	*QMA0621-005	〃	EXT. DC	1
	*F31300-01	Var. Cap. Bracket	Var. Cap.	1
	SPSK2003M	Screw	Var. Cap. Bracket	2
	*SSSK2604M	Screw	M2.6	2
	*F31497-01	Ant. Holder		1
	SPSK1402M	Screw	Beat Cut	2
	*F31537-01	Shield Cover		1
	*F31538-01	〃		1
	*F31539-01	〃		1

Mechanical Components

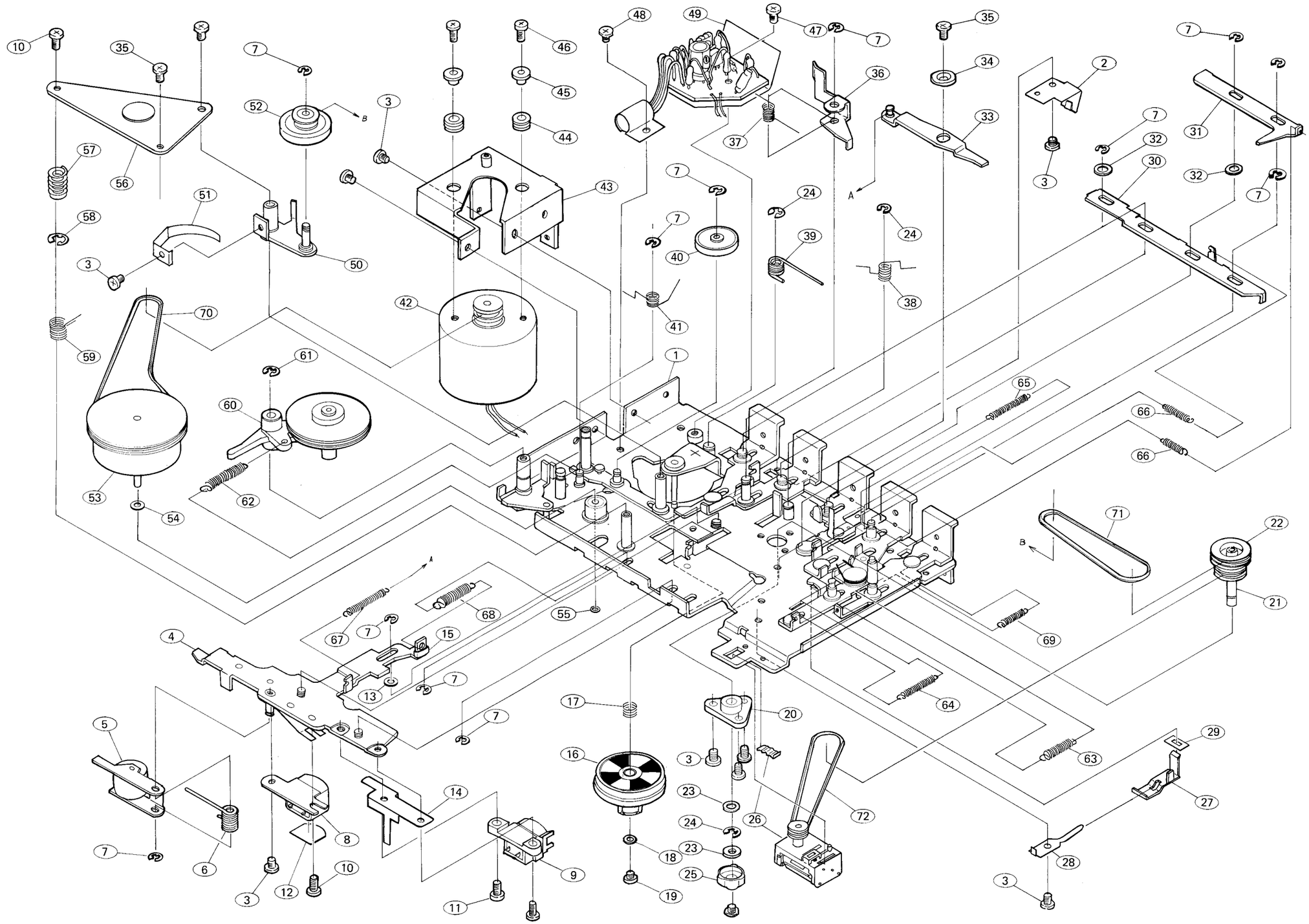


Fig. 28

Parts list of mechanical components

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1	*F31103-0A	Chassis Base Ass'y		1 set
2	*F31468-01	Cassette Spring		1
3	SPSK2002M	Screw		9
4	*F31303-0A	Head Base Ass'y		1 set
5	F28442-0B	P.R. Arm Ass'y		1 set
6	*F31452-01	P.R. Arm Spring		1
7	REE1500X	E. Washer		11
8	*F00331-01	R/P Head		1
9	*F00332-01	Erase Head		1
10	SPSK2005N	Screw		2
11	SPSK2004M	Screw		2
12	*F31535-01	Sheet		1
13	Q03093-834	Washer		1
14	*F31451-01	Wire Clamp		1
15	*QXTV30H-003	Vinyl Tube		1
16	F28448-0B	Clutch Disk Ass'y		1 set
17	*F00302-24	Compression Spring		1
18	Q03093-838	Washer		1
19	F28457-01	Disk Screw		2
20	F28458-01	Disk Stand		1
21	F28459-01	Disk Shaft		1
22	*F31459-01	Supply Pulley		1
23	Q03093-825	Washer		2
24	REE2000X	E. Washer		3
25	F28580-01	Reel Feather		1
26	*F31305-01	Tape Counter		1
27	*F31478-01	Kick Lever		1
28	*F31479-01	Kick Lever Spring		1
29	*F31533-01	Square Washer		1
30	*F31474-01	Lock Plate		1
31	*F31475-01	Rew Slide Plate		1
32	Q03093-827	Washer		2
33	*F31509-0A	Play Arm Ass'y		1 set
34	*F31477-01	Collar		1
35	SSSK2003M	Screw		1
36	*F31471-01	SW. Arm		1
37	*F31531-01	Tortion Spring		1
38	*F31472-01	Tortion Spring		1
39	*F31473-01	Tortion Spring		1
40	F28481-0A	FF Idler Ass'y		1 set
41	F28588-01	FF Idler Spring		1
42	*MDE-3R6AN	Motor Ass'y	with Governor, pulley	1 set
43	*F31507-0A	Motor Bracket Ass'y		1
44	F26449-01	Motor Cushion		2
45	F00400-09	Metal		2
46	SPSK2045M	Screw		2
47	SPSK2004M	Screw		1
48	SPSK2016N	Screw		1
49	*F31526-01	Insulator		1
50	*F31460-0A	Rewind Arm Ass'y		1 set
51	*F31464-01	Rew Spring		1
52	*F31465-0A	Rewind Idler Ass'y		1 set
53	*F31467-0A	Fly Wheel Ass'y		1
54	Q03093-830	Washer		1
55	F28594-01	Capstan Ring		1
56	*F31469-0A	Holder Ass'y		1 set
57	*F00302-22	Compression Spring		1
58	REE3000X	E. Ring		1
59	*F31453-01	Take-up Plate Spring		1
60	*F31454-0A	Take-up Arm Ass'y		1 set
61	REE2500X	E. Ring		1
62	*F00301-25	Tension Spring		1
63	*F00301-26	Tension Spring		1
64	*F00301-27	Tension Spring		1
65	*F00301-28	Tension Spring		1
66	*F00301-29	Tension Spring		2
67	*F00301-31	Tension Spring		1
68	*F00301-32	Tension Spring		1
69	*F00301-34	Tension Spring		1
70	*F00304-18	Belt	Capstan	1
71	*F00304-19	Belt	Rewind	1
72	*F00304-20	Belt	Counter	1
	*QET41HR-105M	E. Capacitor		1
	QCF11HP-103	C. Capacitor		1
	*F00414-01	Lug		1

Total Assembly

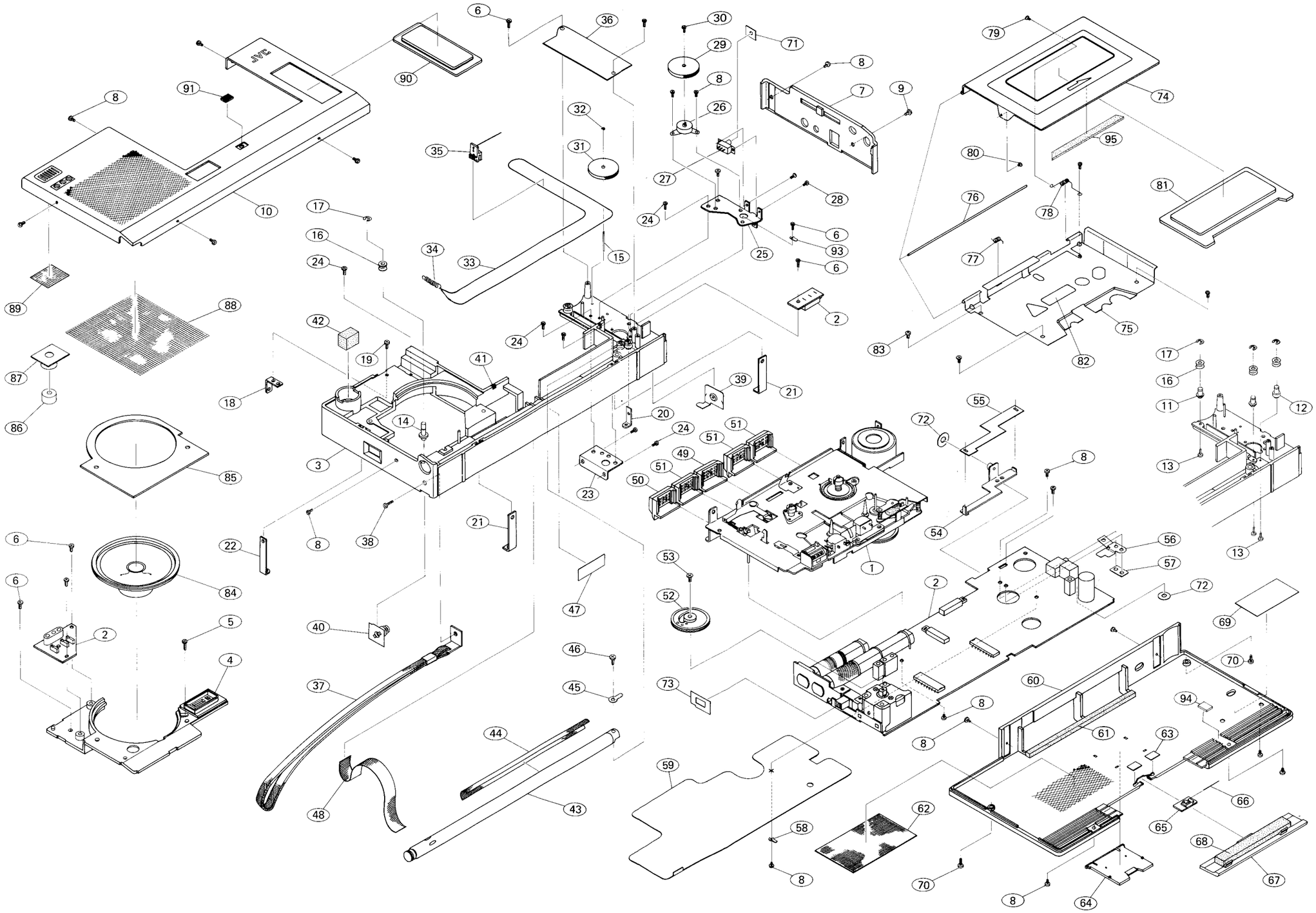


Fig. 29

Parts list of total assembly

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1	*F31M	Mecha. Ass'y		1 set
2	*F31A	Amp. Ass'y		1 set
3	*F31100-01	Mould Chassis		1
4	*F31201-01	Inner Cover		1
5	SPSP2010Z	Screw		1
6	F00410-25N	Screw		10
7	*F31301-01	Side Cover		1
8	SPSK2003M	Screw		18
9	SPSK2004M	Screw		1
10	*F31101-01	Top Panel		1
11	*F31524-01	Stud		2
12	*F31524-02	Stud		1
13	*F00413-02	Screw		3
14	*F31545-01	Stud		1
15	*F31513-01	Tuning Shaft		1
16	*V40409-1	Roller		4
17	REE2500X	E. Ring		4
18	*F31402-01	Front Bracket		1
19	SPSK2004M	Screw		1
20	*F31540-01	Bracket		1
21	*F31403-01	Rear Bracket		2
22	*F31404-01	Side Bracket		1
23	*F31401-01	Bracket		1
24	SPSK2004M	Screw		6
25	*F31400-01	Bracket		1
26	*QVZ3007-002	V. Resistor	Vol.	1
27	*QSS0040-001	Slide Switch	Tone	1
28	SPSK1402M	Screw		2
29	*F31407-02	Volume Knob		1
30	SPSK1703M	Screw		1
31	*F31406-0B	Tuning Knob Ass'y		1
32	REE1000	E. Ring		1
33	*F00416-02	Tuning String		1
34	*F31541-01	Spring		1
35	*F31510-0A	Needle Ass'y		1 set
36	*F31410-03	Dial Plate		1
37	*F31504-0A	Hand Strap Ass'y		1 set
38	*SDSP2604M	Screw		1
39	*F31413-01	Terminal		1
40	*F31511-0A	Terminal Ass'y		1 set
41	*F31544-01	Spacer		2
42	*F00303-26	Spacer		1
43	*QZR4176-002	Rod Antenna		1
44		Hirament Tape		1
45	*F00414-02	Lug		1
46	SBSB2610Z	Screw		1
47	*53866-5	Serial Ticket		1
48	*F31485-01	Ribbon		1
49	*F31486-01	Push Button		1
50	*F31486-02	〃		1
51	*F31486-03	〃		3
52	*F31542-01	Dial Drum		1
53	SPSK2604M	Screw		1
54	*F31493-0B	Switch Lever		1
55	*F31515-01	Spacer		1
56	*F31528-01	Spring		1
57	*F31522-01	Bracket		1
58	*F00414-01	Lug		1

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
59	*F31319-01	Shield Plate		1
60	*F31102-01	Bottom Cover		1
61	*F00303-28	Spacer		1
62	*F31520-02	Bottom Net		1
63	*F00303-25	Spacer		2
64	*F31317-01	Stand		1
65	*F31318-01	Batt. Lid Lock Lever		1
66	*F31512-01	Spring		1
67	*F31302-01	Battery Lid		1
68	*F00303-32	Spacer		1
69	*F31308-01	Name Plate		1
70	SPSK2008M	Screw		2
71	F28559-01	Washer		1
72	*F00405-11	Washer		2
73	*F31530-01	Washer		1
74	*F28304-11	Cassette Lid		1
75	*F31202-01	Inner Lay		1
76	F28533-01	Hinge Shaft		1
77	*F31498-01	Spring		1
78	*F31499-01	Spring		1
79	*F31500-01	Pin		1
80	*F31556-01	Pin		1
81	F28567-01	Window		1
82	F28571-02	Mirror		1
83	SPSK2002M	Screw		4
84	*EAS-6P0IS	Speaker		1
85	*F31482-01	Rubber Sheet		1
86	F00314-02	Microphone		1
87	*F31521-01	Mic. Cover		1
88	*F31484-01	Speaker Net		1
89	*F31518-01	Mic. Net		1
90	*F31411-01	Dial Window		1
91	*F31488-01	Cover		1
92	*F00303-30	Spacer		2
93	*F00414-01	Lug		1
94	*F00303-30	Spacer		1
95	*F31546-01	Spacer		1

Packing

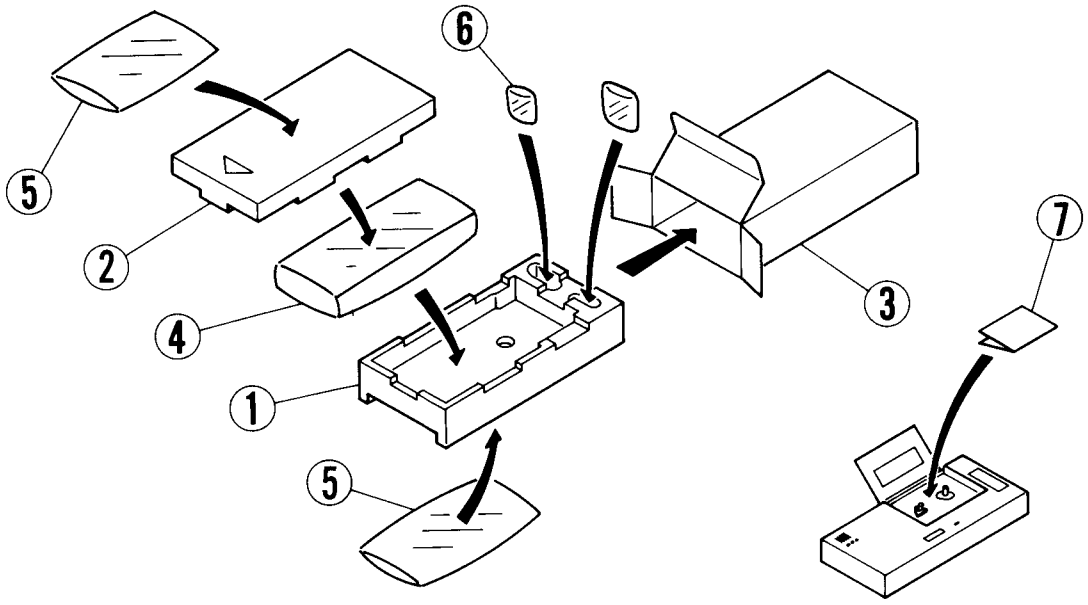


Fig. 30

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1~3	*F31310-0A	Packing Case Ass'y		1 set
1	*F31106-01	Packing Case		1
2	*F31107-01	"		1
3	*F31313-01	Packing Box		1
4	*QPGA015-03005	Poly Bag	for Set	1
5	QPGA012-02505	"	for Inst. Book , Soft Case	2
6	QPGA007-01003	"	for Earphone	1

Accessories

Asterisked parts (*) show new parts.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	*UM-3DJ	Battery		4
	*F31309-01	Soft Case		1
	QME1308-011	Earphone		1
	F27404-0B	Head Cleaning Ass'y		1 set
	*MR200L-IB-EFG	Instruction Book		1
7	*F00417-01	Precautions Card		1